

WHAT IS CLAIMED IS:

1. A self-shielding guard for a unit dose pre-filled glass syringe, wherein the pre-filled syringe has a "T" shaped finger grip and has its own needle, piston and plunger, said guard comprising:

5 a substantially rigid body having a cavity adapted to receive a pre-filled syringe therein, said body having an open proximal end communicating with said cavity, and having a distal end including an opening through which a needle on the pre-filled syringe may extend when the pre-filled syringe is received in said cavity;

10 a body finger grip integrally formed on said proximal end of said body, said body finger grip including a locking mechanism for fixedly engaging the finger grip of the pre-filled syringe received in said cavity;

15 a shield slidably attached to said body, said shield sliding distally between an unguarded and a guarded position, thereby uncovering and covering respectively the needle on the pre-filled syringe; and

20 cooperating detents and detent pockets formed in said body and said shield for mutually engaging to hold said shield in said guarded position.

2. The self-shielding guard of claim 1, wherein said body includes a frame extending along said body within said cavity, said frame being resiliently deflectable, thereby being adapted 5 to facilitate insertion of the pre-filled syringe therein.

3. The self-shielding guard of claim 1, wherein the pre-filled syringe comprises a 0.5 mL capacity pre-filled glass syringe.

4. A self-shielding guard for a unit dose medical cartridge, wherein the cartridge has a piston therein and has its own needle, the piston being attachable to a plunger, said guard comprising:

15 a body having a cavity extending axially between an open proximal end a distal end of said body, said cavity being adapted to receive a medical cartridge therein, said distal end including an opening through which a needle on the cartridge may extend when the cartridge is received in said cavity;

20 a shield slidably attached to said body, said shield having proximal and distal ends, said distal end having an opening through which the needle may extend when said shield is in an unguarded position, said shield being adapted to slide distally

in relation to said body between said unguarded position and a
guarded position wherein the needle is covered by said shield;

cooperating detents and detent pockets formed in said body
and said shield for mutually engaging to hold said shield in said
5 guarded position;

a finger grip plug lockably attachable to said proximal end
of said body, thereby enclosing said cavity and encapsulating the
cartridge received therein, said finger grip plug including a
finger grip extending radially therefrom and including a passage
extending axially therethrough; and

a plunger having proximal and distal ends, said distal end
being insertable through said passage in said finger grip plug,
said distal end being attachable to a piston in the cartridge.

15 5. A self-shielding guard for a medical cartridge or pre-filled
syringe, wherein the cartridge has its own needle and plunger,
said guard comprising:

a substantially rigid body having a cavity adapted to
receive a cartridge therein, said body having an open proximal
20 end communicating with said cavity, and having a distal end
including an opening through which a needle on the cartridge may
extend when the cartridge is received in said cavity;

a finger grip on said proximal end of said body, said finger grip including a locking mechanism for fixedly engaging the cartridge received in said cavity;

a shield slidably attached to said body, said shield sliding 5 distally between an unguarded and a guarded position, thereby uncovering and covering respectively the needle on the cartridge; and

cooperating detents and detent pockets formed in said body and said shield for mutually engaging to hold said shield in said guarded position.

6. The self-shielding guard of claim 5, wherein said body includes an elongate opening therein, said opening being adapted to facilitate observation of the cartridge received in said body.

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7. The self-shielding guard of claim 5, wherein said body comprises a pair of elongate side rails defining said cavity therebetween.

20 8. The self-shielding guard of claim 7, wherein each elongate rail has a "C" shaped cross-section.

9. The self-shielding guard of claim 5, wherein said body has a substantially rectangular cross-section.

10. The self-shielding guard of claim 5, wherein said shield 5 includes an elongate opening therein, said opening being adapted to facilitate observation of the cartridge received in said body.

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11. The self-shielding guard of claim 5, wherein said shield has a tapered distal end adapted to at least partially cover a distal hub of the cartridge received within said body when said shield is in said unguarded position.

12. The self-shielding guard of claim 5, wherein said finger grip has a substantially rectangular shape.

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13. The self-shielding guard of claim 12, wherein said finger grip includes a recess therein, said recess being adapted to receive a similarly shaped flange on the cartridge, thereby substantially retaining the cartridge in a predetermined 20 orientation within said body.

14. The self-shielding guard of claim 13, wherein said predetermined orientation facilitates observation of the cartridge through a window in said shield.

5 15. The self-shielding guard of claim 5, further comprising a unit dose cartridge adapted to be received in said cavity.

10 16. The self-shielding guard of claim 15, wherein said unit dose cartridge comprises a 0.5 mL capacity pre-filled unit dose syringe.

15 17. The self-shielding guard of claim 5, wherein said locking mechanism includes an attachable clip having a plurality of fingers for securing a proximal end of the cartridge to the finger grip, thereby preventing the cartridge received in said body from moving proximally or distally.

20 18. The self-shielding guard of claim 5, wherein said locking mechanism comprises a collar within said finger grip, said collar being adapted to provide an interference fit with an outer surface of the cartridge received in said body.

19. The self-shielding guard of claim 18, wherein said collar includes an annular ring thereon extending radially in to partially obstruct said cavity.

5 20. The self-shielding guard of claim 5, wherein said finger grip includes a recess in a proximal end thereof for receiving a proximal flange of the cartridge therein.

10 21. The self-shielding guard of claim 20, wherein said finger grip includes a substantially flat wall at least partially defining said recess, said substantially flat wall being adapted to engage a flat edge of the proximal flange of the cartridge, whereby the cartridge is received in said cavity in a predetermined orientation.

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20 22. The self-shielding guard of claim 21, wherein said finger grip includes a locking tab extending from said substantially flat wall into said recess, said tab being adapted to lockably capture the proximal end of the cartridge thereunder when the cartridge is received within said cavity.

23. The self-shielding guard of claim 20, wherein said locking mechanism includes a latch for lockably closing said recess after the cartridge is received therein.

5 24. The self-shielding guard of claim 23, wherein:
said latch comprises a semi-rigid hinged member on a wall of
the finger grip; and
said finger grip includes a tab on a wall opposite said
hinged member, for lockably receiving said latch thereunder,
thereby substantially encapsulating the proximal end of the
cartridge within said recess.

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15 25. The self-shielding guard of claim 23, wherein said latch includes an aperture for accommodating a plunger on the cartridge received in said body.

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25 26. The self-shielding guard of claim 20, wherein said finger grip includes a tab extending into said recess, said tab being adapted to lockably engage the proximal flange thereunder when the cartridge is received in said recess.

27. The self-shielding guard of claim 5, wherein said body includes a semi-rigid tab extending along said cavity, said tab being adapted to be resiliently deflected between an outer position and an inner position, said outer position being adapted 5 to accommodate a needle cap when the cartridge is directed distally through said cavity, said inner position being adapted to resiliently engage a barrel of the cartridge after the needle cap has been directed through said distal end of said body.

10 28. A self-shielding guard for a unit dose cartridge having its own needle and plunger, said guard comprising:

15 a body having a cavity adapted to receive a unit dose cartridge axially therein through an open proximal end in said body, said body having a distal end including an opening through which a needle on the cartridge may extend when the cartridge is received within said cavity;

20 a finger grip on said proximal end of said body having a substantially rectangular cross-section corresponding substantially to a generally rectangular shaped flange on a proximal end of the cartridge to be received in said cavity;

a locking mechanism on said finger grip, said locking mechanism being adapted to engage the generally rectangular

shaped flange of the cartridge when the cartridge is received in said cavity, thereby preventing the cartridge from moving axially;

5 a shield slidably attached to said body, and having open unguarded and a guarded position, thereby uncovering and covering respectively the needle on the cartridge; and

10 cooperating detents and detent pockets formed in said body and said shield for mutually engaging to hold said shield in said guarded position.

29. The self-shielding guard of claim 28, wherein said finger grip is integrally molded to said proximal end of said body.

15 30. The self-shielding guard of claim 28, wherein said finger grip includes a plurality of substantially flat side walls defining a recess in a proximal end thereof, at least one of said plurality of flat walls being adapted to engage a substantially flat portion of the flange on the proximal end of the cartridge, 20 whereby said cartridge is received within said body in a predetermined orientation.

31. The self-shielding guard of claim 30, wherein said shield includes an elongate opening therethrough, and wherein said predetermined orientation facilitates observation of a label on the barrel of the cartridge through said elongate opening.

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32. The self-shielding guard of claim 30, wherein said locking mechanism comprises a plurality of locking detents on one or more of said plurality of side walls.

33. The self-shielding guard of claim 32, wherein said plurality of locking detents define a pair of slots in two opposite side walls of said finger grip, said slots being adapted to receive the substantially flat portion of the flange on the cartridge therein.

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34. The self-shielding guard of claim 30, wherein:
said recess has a shape adapted to receive the proximal end of the cartridge therein; and
said locking mechanism includes a tab on one of said plurality of side walls extending into said recess, said tab being adapted to lockably engage the proximal end of the cartridge when the proximal end is received in said recess.

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35. The self-shielding guard of claim 28, wherein said body has a substantially rectangular cross-section.

5 36. The self-shielding guard of claim 28, wherein said body comprises a pair of substantially rigid elongate side rails extending between said proximal and distal ends of said body.

37. A self-shielding syringe guard adapted to receive a unit dose pre-filled syringe comprising a substantially smooth-walled barrel, a needle on a distal hub of the barrel, and a plunger slidably inserted into a proximal end of the barrel, said guard comprising:

a body having an open proximal end and a substantially rigid distal end, said body having a cavity extending axially between said proximal and distal ends, said cavity being adapted to receive a pre-filled syringe therein, said distal end including an opening through which a needle on the pre-filled syringe may extend when the pre-filled syringe is received in said cavity;

20 a frame extending along said body within said cavity, said frame being resiliently deflectable, thereby being adapted to

facilitate insertion of the pre-filled syringe being received therein;

5 a finger grip on said proximal end of said body, said finger grip including a locking mechanism for fixedly engaging the proximal end of the pre-filled syringe received in said cavity;

10 a shield slidably attached to said body, said shield sliding distally between an unguarded and a guarded position, thereby uncovering and covering respectively the needle on the pre-filled syringe; and

15 cooperating detents and detent pockets formed in said body and said shield for mutually engaging to lock said shield in said guarded position.

38. The self-shielding guard of claim 37, wherein:

15 said cavity has a predetermined diameter and the barrel of the pre-filled syringe being received therein has a diameter substantially smaller than said predetermined diameter; and

20 said frame includes a pair of ribs extending axially along a portion of said cavity, said pair of ribs at least partially defining a diameter substantially coextensive with the diameter of the barrel of the pre-filled syringe, whereby said ribs may

engage the barrel to enhance a rigidity characteristic of said body.

39. The self-shielding guard of claim 38, wherein said pair of 5 ribs are integrally molded to said body.

40. The self-shielding guard of claim 38, wherein:

the diameter of the barrel on the pre-filled syringe is smaller than a diameter of a needle protector cap provided on the 10 distal hub of the pre-filled syringe; and

said pair of ribs are deflectable outward to accommodate the needle protector cap being directed distally through said cavity, said pair of ribs resiliently returning to engage the barrel of the pre-filled syringe when the needle protector cap extends 15 through said distal end of said body.

41. A self-shielding disposable injection device, said device comprising:

a pre-filled syringe having a substantially smooth-walled 20 barrel, a needle on a distal hub of said barrel, a rigid needle protector cap detachably covering said needle, and a plunger slidably inserted into a proximal end of said barrel, said barrel

having a diameter smaller than said needle protector cap, said barrel containing a predetermined amount of fluid;

a body having a cavity extending axially between an open proximal end a distal end of said body, said cavity being adapted 5 to receive said pre-filled syringe therein, said distal end including an opening through which said needle and said needle protector cap may extend when said cartridge is received in said cavity;

a rib extending partially along said body within said cavity, said rib being resiliently deflectable to engage successively said needle protector cap and said barrel when said cartridge is being received within said cavity;

a shield slidably attached to said body, said shield having proximal and distal ends, said distal end having an opening 15 through which said needle and said needle protector cap may extend when said shield is in an unguarded position, said shield being adapted to slide distally in relation to said body between said unguarded position and a guarded position wherein said needle is covered by said shield; and

20 a plurality of detents on said shield for locking said shield in said guarded position.

42. The self-shielding guard of claim 41, further comprising a finger grip on said proximal end of said body, said finger grip being adapted to lockably engage said proximal end of said pre-filled syringe to prevent axial movement of said pre-filled
5 syringe.

43. The self-shielding guard of claim 42, wherein:
said finger grip is integrally molded to said proximal end of said body; and
said finger grip includes locking detents thereon for engaging said proximal end of said pre-filled syringe, thereby substantially permanently holding said pre-filled syringe in said body.

15 44. The self-shielding guard of claim 42, wherein said finger grip includes:

a recess adapted to receive said proximal end of said pre-filled syringe therein; and
a detent for engaging said proximal end received in said recess, thereby preventing axial and lateral movement of said pre-filled syringe within said cavity.

45. The self-shielding guard of claim 44, wherein said recess has a substantially rectangular shape corresponding to a similarly shaped flange on said proximal end of said pre-filled syringe.

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46. The self-shielding guard of claim 42, wherein said finger grip includes a substantially flat wall, and said flange on said pre-filled syringe includes a substantially flat portion, whereby said flat wall substantially engages said flat portion of said flange when said pre-filled syringe is received in said cavity, thereby providing a predetermined orientation of said pre-filled syringe within said body.

47. The self-shielding guard of claim 42, wherein said finger grip on said body has a substantially rectangular cross-section.

48. The self-shielding guard of claim 41, wherein said body includes a frame molded to an inside wall thereof for supporting said rib within said cavity, said frame including a plurality of semi-rigid arms connected to said rib for resiliently deflecting said rib between an outer position adapted to accommodate said needle protector cap when said pre-filled syringe is directed

into said cavity and an inner position adapted to engage said barrel.

49. The self-shielding guard of claim 41, wherein said body includes a lead-in rib near said proximal end, said lead-in rib extending into said cavity, thereby being adapted to guide said pre-filled syringe during insertion into said cavity.

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50. The self-shielding guard of claim 41, wherein said pre-filled syringe comprises a conventional 0.5 mL capacity pre-filled glass syringe.

51. The self-shielding guard of claim 41, wherein said body includes detent pockets therein adapted to lockably engage said plurality of detents when said shield is in said guarded position.

52. The self-shielding guard of claim 51, wherein said body has a substantially rectangular cross-section, and wherein said detent pockets are formed along an edge of said body.

53. A self-shielding guard for a medical cartridge having a needle on its distal end and a piston in its proximal end, said guard comprising:

a body having a cavity extending axially between an open proximal end a substantially rigid distal end of said body, said cavity being adapted to receive a medical cartridge therein, said distal end including an opening through which a needle on the cartridge may extend when the cartridge is received in said cavity;

a shield slidably attached to said body, said shield having proximal and distal ends, said distal end having an opening through which the needle may extend when said shield is in an unguarded position, said shield being adapted to slide distally in relation to said body between said unguarded position and a guarded position wherein the needle is covered by said shield;

cooperating detents and detent pockets formed in said body and said shield for mutually engaging to hold said shield in said guarded position; and

a finger grip plug lockably attachable to said proximal end of said body, thereby enclosing said cavity and encapsulating the cartridge received therein.

54. The self-shielding guard of claim 53, further comprising a plunger having a distal end attachable to a piston in the cartridge, thereby allowing said plunger to slidably direct the piston distally and proximally.

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55. The self-shielding guard of claim 54, wherein said finger grip plug includes a passage extending axially therethrough, said passage being adapted to receive said distal end of said plunger therethrough when said finger grip plug is attached to said body.

56. The self-shielding guard of claim 55, wherein said plunger includes a one-way locking member adapted to allow insertion of said plunger distally through said passage through said finger grip plug, and prevent withdrawal proximally therefrom.

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57. The self-shielding guard of claim 56, wherein said one-way locking member comprises a resiliently compressible tab, said tab being compressible inward to facilitate insertion of said plunger through said passage through said finger grip plug, said tab resiliently returning outward to engage a proximal lip on said finger grip plug to prevent said plunger from being withdrawn proximally therefrom.

58. The self-shielding guard of claim 53, wherein said finger
grip plug includes a plurality of locking detents, and said
proximal end of said body includes tapered pockets adapted to
5 receive said locking detents, said finger grip plug being
lockably attached to said body when said locking detents fully
engage said tapered pockets.

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59. The self-shielding guard of claim 58, wherein said locking
detents have a distal edge adapted to engage a proximal end of
the cartridge received within said passage, thereby preventing
substantial axial movement of the cartridge within said cavity.

60. The self-shielding guard of claim 53, wherein said body
15 includes a detent on said distal end, said detent being adapted
to engage a proximal lip on a distal hub of the cartridge,
thereby preventing substantial axial movement of the cartridge
received within said cavity.

20 61. The self-shielding guard of claim 53, wherein said body
includes a retaining detent within said cavity at a predetermined
distance from said distal end of said body, said detent being

adapted to engage the proximal end of a cartridge having a length corresponding to said predetermined distance, whereby when the cartridge is received within said cavity, said retaining detent may prevent proximal movement of the cartridge, and the needle 5 may extend beyond said distal end of said body.